CLAIMS

1. A method for determining position of a target moving relative to a magnetic sensor, the target having magnetic irregularities defining a pitch, an output of the magnetic sensor being responsive to movement of the target relative thereto, a voltage level of the output having a range comprising, for each pitch, at least one linear slope, said method comprising the steps of:

determining a maximum voltage level of the output of the magnetic sensor;

determining a minimum voltage level of the output of the magnetic sensor;

calculating a preselected number of mutually spaced voltage levels, each said voltage level corresponding to a respective voltage level of the at least one linear slope; and

generating a plurality of position pulses, each position pulse being generated when the voltage level of the output of the magnetic sensor has a predetermined relationship with respect to a respective calculated voltage level on the at least one linear slope.

2. The method of Claim 1, wherein the at least one linear slope comprises a linear first slope and a linear second slope, wherein said step of generating a position pulse further comprises:

a position pulse being generated if the voltage level of the output of the magnetic sensor is at least equal to a respective calculated voltage level on the linear first slope; and

a position pulse being generated if the voltage level of the output of the magnetic sensor is at most equal to a respective calculated voltage level on the linear second slope.

3. The method of Claim 2, further comprising detecting a reference pulse before said step of calculating.

4. The method of Claim 3, further comprising, before said step of calculating and after said step of detecting, calculating a first calculated voltage level of the preselected number of voltage levels at a beginning of the first slope.

5. The method of Claim 4, wherein said step of calculating further comprises determining which of said first and second slopes the output voltage of the sensor is to be compared to in said step of generating.

6. A method for determining position of a target moving relative to a magnetic sensor, the target having magnetic irregularities defining a pitch, an output of the magnetic sensor being responsive to movement of the target relative thereto, a voltage level of the output having a range comprising, for each pitch, at least one linear slope, said method comprising the steps of:

determining a maximum voltage level of the output of the magnetic sensor;

determining a minimum voltage level of the output of the magnetic sensor;

determining a preset number of pitches;

calculating a voltage level when the preset number of pitches has occurred, wherein the voltage level corresponds to a respective voltage level of the at least one linear slope; and

generating a position pulse when the voltage level of the output of the magnetic sensor has a predetermined relationship with respect to the calculated voltage level on the at least one linear slope.

7. The method of Claim 6, wherein the at least one linear slope comprises a linear first slope and a linear second slope, wherein said step of generating a position pulse further comprises:

the position pulse being generated if the voltage level of the output of the magnetic sensor is at least equal to a respective calculated voltage level on the linear first slope; and

the position pulse being generated if the voltage level of the output of the magnetic sensor is at most equal to a respective calculated voltage level on the linear second slope.

8. The method of Claim 5, further comprising detecting a reference pulse before said step of calculating.

9. The method of Claim 8, wherein said step of calculating comprises:

determining which of said first and second slopes the output voltage of the sensor is to be compared to in said step of generating.

10. A magnetic sensor comprising:

a bias magnet having a bottom, said magnet providing a magnetic field;

a magnetic target located adjacent said bottom of said bias magnet in movable relation with respect thereto; and

a magnetically sensitive element located between said bias magnet and said magnetic target;

wherein said magnetic target comprises predetermined magnetic irregularities which magnetically affect said magnetic field of the bias magnet sensed by the magnetically sensitive element as said magnetic target moves in relation to said bias magnet and said magnetically sensitive element; and

wherein said magnetic field provides a parallel component of magnetic field which is parallel to a direction of movement of the magnetic irregularities relative to the magnetically sensitive element, and wherein said magnetically sensitive element is sensitive to the parallel component of magnetic field.

11. The magnetic sensor of Claim 10, wherein said magnetic irregularities comprise a serially arranged pattern of teeth and slots, each tooth being separated from an adjacent tooth by a respective slot, wherein the slots have a predetermined slot width in the direction of the movement, and said bias magnet has a predetermined magnet length in the direction of the movement, and wherein said magnet length is at least substantially between seventy percent and one hundred percent of said slot width.

12. The magnetic sensor of Claim 11, wherein said magnetically sensitive element is selected from the group comprising a Hall effect device, a semiconductor magnetoresistor, a permalloy magnetoresistor and a giant magnetoresistor.

13. The magnetic sensor of Claim 12, wherein said output signal has a maximum and a minimum, wherein a first slope pertains to said output signal going from said minimum to said maximum and a second slope pertains

to said output signal going from said maximum to said minimum, wherein said first and second slopes are mutually different.